

Appl. No. 09/654,087
Amendment dated November 2, 2004
Reply to Office Action of August 2, 2004

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (Currently Amended): An optical transmitter module which has comprising:

- _____ an optical semiconductor element[[.]]:
- _____ an inline optical isolator member comprising an optical isolator, [[an]] a first optical fiber disposed on a side face of said optical isolator and optically coupled facing to said optical semiconductor element, and a second optical fiber disposed on another side of said optical isolator and communicating to outside;
- _____ a package case containing said optical semiconductor element; and said optical fiber, and an optical isolator disposed on a side face of said package case and arranged to optically couple to a distal end of said optical fiber inside said package case for optical coupling with another optical fiber provided outside said package case, comprising:
 - a substrate member with one end of said optical fiber on the light incident side fixed thereon to be optically coupled to said optical semiconductor element;
 - a thermoelectric cooler with said substrate member joined to a top surface thereof provided in said package case;
 - a substrate member mounted on the thermoelectric cooler, in said package case; and
 - a pipe-like support member projecting from [[the]] a side face of said package case for fixing said optical isolator,

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wherein said inline optical isolator member is ~~joined on its whole perimeter~~
~~teintroduced from~~ said pipe-like support member ~~at a distal end thereof so as to be~~
~~fixed to said pipe-like support member into said package case.~~

wherein said first optical fiber is fixed at a distal end to said substrate member
so as to optically couple to said optical semiconductor element, and

wherein said optical isolator has an area fixed in said pipe-like support
member, said area being jointed on its whole perimeter to a distal end of said pipe-
like support member so as to be fixed to said pipe-like support member.

Claim 2 (Original): The optical transmitter module according to claim 1, wherein the end of said optical fiber on the light incident side is spherical or conical in shape.

Claim 3 (Previously Presented): The optical transmitter module according to claim 1, wherein the length of said optical fiber from said optical isolator to the point at which said optical fiber is fixed to optically couple to said optical semiconductor element is 15 to 25 mm.

Claim 4 (Previously Presented): The optical transmitter module according to claim 1, wherein said optical isolator is fixed to said pipe-like support member through laser welding or brazing.

Claims 5-6 (Cancelled):

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Claim 7 (Currently Amended): The optical transmitter module according to claim [[6]]1, wherein a signal light passing through said optical isolator is a substantially collimated light or a substantially converged light.

Claim 8 (Previously Presented): The optical transmitter module according to claim 1, wherein said optical fiber positioned between said optical isolator and said pipe-like support member is arranged in a bent state.

Claim 9 (Previously Presented): The optical transmitter module according to claim 5, wherein said optical fiber positioned between said optical isolator and said pipe-like support member is arranged in a bent state.

Claim 10 (Previously Presented): The optical transmitter module according to claim 6, wherein said optical fiber positioned between said optical isolator and said pipe-like support member is arranged in a bent state.

Claim 11 (Previously Presented): The optical transmitter module according to claim 1, wherein a signal light passing through said optical isolator is a substantially collimated light or a substantially converged light.

Claim 12 (Previously Presented): The optical transmitter module according to claim 5, wherein a signal light passing through said optical isolator is a substantially collimated light or a substantially converged light.

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Claim 13 (Currently Amended): An optical transmitter module,

comprising:

a package case comprising a pipe-like support member projecting from a side face thereof;

a thermoelectric cooler positioned inside ~~at~~ the package case;

a substrate mounted on the thermoelectric cooler inside the package case;

an optical semiconductor element disposed on the substrate to generate a light beam;

~~an optical fiber disposed on the substrate, and optically coupled to the optical semiconductor element to transport the light beam, via a side face of the package case;~~

an inline optical isolator member ~~disposed outside of the package case,~~
~~aligned with the optical fiber~~ comprising an optical isolator, a first optical fiber
disposed on one side of the optical isolator facing the optical semiconductor element,
and a second optical fiber disposed on the other side of the optical isolator, via the
side face of the package case, and optically connected to a distal end of said optical
fiber to provide a substantially collimated light beam or a substantially converged
light beam;

~~a pipe-like support member projecting from the side face of the package case~~
~~to fix the optical isolator;~~

wherein the inline optical isolator member is introduced into the package
case, from the pipe-like support member, via the side face of the package case, such
that the first optical fiber is secured on the substrate and optically coupled to the
optical semiconductor element; and

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wherein the optical isolator is joined on its whole perimeter to the pipe-like support member at a distal end thereof so as to be fixed to the pipe-like support member.

Claim 14 (Currently Amended): The optical transmitter module according to claim 13, wherein the end of the first optical fiber on a light incident side is spherical or conical in shape.

Claim 15 (Currently Amended): The optical transmitter module according to claim 13, wherein the length of the first optical fiber from the optical isolator to the point at which the optical fiber is fixed to optically couple to the optical semiconductor element is 15 to 25 mm.

Claim 16 (Currently Amended): The optical transmitter module according to claim 13, wherein the first optical fiber positioned between the optical isolator and the pipe-like support member is arranged in a bent state.

Claim 17 (New): A method of manufacturing an optical transmitted module comprising the steps of:

providing a package case comprising a pipe-like support member projecting from a side face thereof;

disposing, in said package case, an optical semiconductor element, a substrate member mounting said optical semiconductor element and a thermoelectric cooler mounting said substrate member on a top surface,

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providing an Inline optical isolator member comprising an optical isolator, a first optical fiber disposed on a side face of said optical isolator and facing to said optical semiconductor element, and a second optical fiber disposed on another side of said optical isolator and communicating to outside;

introducing said inline optical isolator member from and through said pipe-like support member into said package case;

fixing a distal end of said first optical fiber to said substrate member so as to optically couple to said optical semiconductor element; and

after the above step, fixing said optical isolator in said pipe-like support member.

Claim 18 (New): The method of manufacturing the optical transmitter module according to claim 17, wherein said optical isolator is jointed on its whole perimeter to a distal end of said pipe-like support member so as to be fixed to said pipe-like support member.

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